

REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-14 remain active in the application subsequent to entry of this Amendment.

Claim 8, objected to by the examiner for containing a misspelled word, has been corrected.

Claims 1-7 have been revised and placed in the appropriate process format thereby resolving the issues raised in items 6-9 of the Official Action.

The claims have also been amended in order to more particularly point out and distinctly claim that which applicants regard as their invention. Claims 1, 8 and 9 (all of the independent claims) are above amended to include an oxidative treatment of the keratin-containing material, in which the keratin-containing material is contacted with a solution which comprises bleaching agent (international publication, page 2, lines 8-9). The amendments are fully supported by the original disclosure and, thus, no new matter is added by their entry. Support for the added terminology is provided as indicated above.

Claims 10-14 are the subject of a provisional obviousness-type double patenting rejection over co-pending application 10/589,869; *see* item 4 of the Official Action. Applicants will hold a full response to this provisional rejection in abeyance until such time as claims are allowed in the subject application or in the referenced application.

The balance of the Official Action relates to a series of rejections based on prior art as set out in more detail in items 10-15. In this response attention will be paid primarily to the independent claims it being understood that the claims depending from those independent claims are also not made obvious or anticipated by the applied documents because the limitations of an independent claim are incorporated into their dependent claims as provided by MPEP §2143.03.

Schroeder et al U.S. 6,120,644 is applied as an alleged anticipation to claims 1, 8 and 9 as they previously stood; *see* items 10-11. The same reference is also applied to claims 10-14 in item 12.

Schroeder et al describe the use of a cationic amidoamine compound for improving the softness of tissues. The amidoamine compound can be added at the wet end of the tissue machine (column 1, lines 25-28). The cationic amidoamine can be applied with or without one or more softener/debonders (column 1, lines 33-37). Schroeder et al mention possible

quaternized protein compound softener/debonders having a hydrolyzed keratin moiety (column 5, lines 15-42).

Although these quaternized protein compound softener/debonders have a hydrolyzed keratin moiety, there is no disclosure that these compounds have been derived from keratin-containing material, let alone through oxidation. As a result, Schroeder et al cannot be held to anticipate the present claims.

In addition, it is noted that Schroeder et al disclose quaternized protein compound softeners/debonders *having a hydrolyzed keratin moiety* rather than a protein hydrolysate derived from a keratin-containing material.

In items 13-15 of the Official Action, Schroeder et al, as above discussed, is combined with a published international application of Schrooyen et al. Schrooyen et al describes the application of keratin as a component in films and coatings (page 4, lines 4-7). Schrooyen et al do not relate to a papermaking process.

Moreover, Schrooyen et al mention on page 2, line 25 to page 3, line 1 that keratin hydrolysates obtained by degradation of the keratin polymer using hydrogen peroxide are less suited for coating applications. As a consequence, Schrooyen et al teach partial degradation of the keratin molecules using a reducing agent at alkaline pH and particle modification of the free -SH groups (page 4, lines 10-13), instead of oxidative degradation using a bleaching agent as used in the present invention.

In item 15 of the Official Action the examiner substitutes the primary reference with U.S. 5,707,491 to Hughes et al.

Hughes et al describe a method for making solubilized collagen-strengthened paper, in which collagen is added to cellulosic pulp slurry and the mixture is formed into a sheet, which is dried.

The specific combination of the teachings of Hughes et al and Schrooyen et al is based on hindsight, as the cited prior art does not provide any incentive for the skilled person that a substitution of the solubilized collagen with keratin would yield a paper with equal mechanical strength. In other words, even if a substitution is made there is no expectation of a successful result.

Moreover, the collagen described by Hughes et al is degraded enzymatically using a proteolytic enzyme (column 2, lines 43-58), instead of oxidatively using a bleaching agent as required by the present invention. Enzymatic degradation of collagen yields protein fragments that are uncharged by apparently contribute to the strength of the papers.

To establish a case of *prima facie* obviousness, all of the claim limitations must be taught or suggested by the prior art. See M.P.E.P. § 2143.03. A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. *In re Kahn*, 78 USPQ2d 1329, 1334 (Fed. Cir. 2006) citing the legal standard provided in *Graham v. John Deere*, 148 USPQ 459 (1966). The *Graham* analysis needs to be made explicitly. *KSR v. Teleflex*, 82 USPQ2d 1385, 1396 (2007). It requires findings of fact and a rational basis for combining the prior art disclosures to produce the claimed invention. See *id.* (“Often, it will be necessary for a court to look to interrelated teachings of multiple patents . . . and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue”). The use of hindsight reasoning is impermissible. See *id.* at 1397 (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning”). Thus, a *prima facie* case of obviousness under Section 103(a) requires “some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct.” *Kahn*, 78 USPQ2d at 1335; see *KSR*, 82 USPQ2d at 1396. A claim which is directed to a combination of prior art elements “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.* at 1396. Finally, a determination of *prima facie* obviousness requires a reasonable expectation of success. See *In re Rinehart*, 189 USPQ 143, 148 (C.C.P.A. 1976).

In accordance with the present invention, keratine is degraded oxidatively during which SH bridges are oxidized to sulphone groups that provide the polymer with a charge. As a result, the polymer dissolves much better in water. In view of these fundamental differences in chemistry, it would certainly not be obvious to the skilled person in view of Hughes et al that protein hydrolysates derived from keratin-containing material through oxidation would be advantageous as paper additive.

SLAGHEK ET AL.
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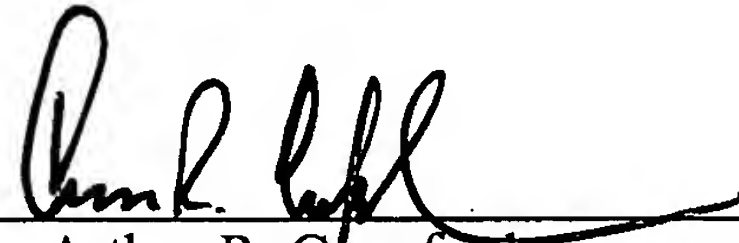
For the above reasons it is respectfully submitted that the claims of this application define inventive subject matter. Reconsideration and allowance are solicited. Should the examiner require further information, please contact the undersigned.

Please see the concurrently filed Information Disclosure Statement citing the references cited in the co-pending application Serial No. 10/589,869, now pending in Group Art Unit 1791, which has not yet been examined.

Respectfully submitted,

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